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| 10/643,682 | 08/18/2003 | Mitsuhiro Yamamoto | 03-481/LH | 4603 |
| 1933 7590 03/19/2008 FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708 | | | | |
| EXAMINER | | | | |
| SMITH, NICHOLAS A | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/643,682

Applicant(s)

YAMAMOTO ET AL.

Examiner

NICHOLAS A. SMITH

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-7, 9, 10, 25, 27 and 36-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-7, 9-10, 25, 27 and 36-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1-2, 4-7, 9-10, 25, 27 and 36-45 remain for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by McCarthy et al. (US 6,139,716) as evidenced by Wei (US 5,350,564).
4. In regards to claim(s) 1-2, 36 and 37, McCarthy et al. discloses a treatment method wherein providing a material comprising a first metal film formed on a substrate and a second metal film formed on said first metal film, said first metal film being formed from a metal selected from the group consisting of chromium, titanium, tungsten, palladium and molybdenum, or an alloy thereof (col. 3, line 39 to col. 4, line 22), forming a predetermined pattern on the second metal film by selectively removing a portion of the second metal film, whereby there is an exposed portion of the first metal film from which the portion of the second metal film which is removed (col. 3, line 39 to col. 4, line 22), immersing said material and a positive electrode in an acidic reduction treatment solution containing an acid radical and performing an electrolysis reduction process by applying a negative voltage to said material and applying a positive voltage to said positive electrode (col. 3, line 39 to col. 4, line 22) and etching the first metal film

by contacting the exposed portion with an acidic etching treatment solution to form the predetermined pattern on the first metal film (col. 3, line 39 to col. 4, line 22). McCarthy et al. discloses a plate electrode (Figure).

5. McCarthy et al. does not explicitly disclose that the exposed portion of the first metal film is passivated and that whereby nascent hydrogen reduces said passivated portion to first film. However, Wei, whom teaches of etching of chromium, evidences inherently that electrolytic action causes hydrogen to be released at the chromium interface and depassivates chromium oxide film and causes etching thereof. Further, exposed chromium metal naturally passivates to form a chromium oxide surface layer when exposed to air or water.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-7, 25, 38-39, 42 and 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCarthy et al. as evidenced by Wei as stated above, and in view of Imai (US 4,642,168).

8. In regards to claim(s) 4 and 6-7, McCarthy et al. does not explicitly disclose etching in a solution with a chloride ion.

9. Imai discloses etching a pattern into a chromium layer use an electrolytic solution containing hydrochloric acid (Example 5A). It would have been obvious to one of

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ordinary skill in the art to modify McCarthy et al.'s method with Imai's step of using hydrochloric acid because Imai teaches patterned chromium can be obtained better with a solution of hydrochloric acid (Imai, Example 5A).

10. In regards to claim(s) 5, 25, 38-39, 42 and 44-45, McCarthy et al. as evidenced by Wei is applied to the claims as stated above in paragraphs 4, 5 and 9. Furthermore, Examiner asserts that the dipping occurs at the same time as the immersing.

11. Claims 9, 10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCarthy et al. in view of Wei.

12. McCarthy et al. discloses a primary embodiment of molybdenum as a first layer and chromium as a second layer (col. 3, line 47 to col. 4, line 3). McCarthy et al. also discloses that metal layers can be etched electrolytically (claim 1).

13. Wei discloses that patterning of chromium thin films is accomplished effectively with chromium as a first layer (or a chromium-nickel alloy) and aluminum as a second layer (col.1, lines 51-68; Fig. 4A-F; col. 4, lines 22-28). It would have been obvious to one of ordinary skill in the art to modify McCarthy et al.'s method of patterning of metal with Wei's method of chromium as a first layer because Wei teaches it is effective being a simple, reliable and economical method of etching with high resolution thin films of metals including chromium as a major constituent (Wei, col. 1, lines 47-50).

14. Claims 40-41 and 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCarthy et al. in view of Imai and in further view of Wei.

15. McCarthy et al. in view of Imai and in further view of Wei is applied to the claims for the same reasons as stated in paragraph(s) 4-5, 9-10 and 12-13 above.

Response to Arguments

16. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Please see rejection ground state above.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

18. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICHOLAS A. SMITH whose telephone number is (571)272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

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20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on (571)-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

NAS